



## COMMANDER NAVY REGION SOUTHWEST

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### ISSUE PAPER

Proposed California state regulatory action and proposed measures to protect marine mammals may encourage commercial shipping to alter existing transit routes from the Santa Barbara Channel shipping lanes to a route through the Point Mugu Sea Range, which if implemented, would impact the California military range activities as well as air quality in the South Coast Air Basin.

### BACKGROUND:

Proposals to move commercial shipping from the current location, Santa Barbara Channel hugging the coast, to a new location within the Navy's Point Mugu Sea Range ("Sea Range") in order to reduce pollution from nitrogen oxides (NOx) in the South Coast basin have been extremely controversial since first proposed by USEPA in the early 90's and then again by the California Air Resources Board (CARB) in the late 90's. The Sea Range, a highly instrumented state-of-the-art facility, is a key national security asset for the United States and its allies. The Sea Range Senior Operators Impact Report (SOIR), a proactive analysis to quantify operations in order to be able to timely respond to regulatory proposals that may affect all southern California (SOCAL) range operations, determined that over 17,000 DoD sponsored evolutions are conducted annually on the Sea Range. Past proposals to move the shipping channel would have meant, on average, a large vessel would cross the 100 mile-wide Sea Range every two hours, 24 hours a day. This level of commercial activity would severely impact Navy Fleet Training as well as research test & evaluation activities. The Navy's premier weapons, such as the Tomahawk cruise missile, could not have been developed without this range. Additionally, fleet training activities occurring on the Sea Range are critical to ensure the readiness of Navy Strike Groups prior to operational deployments.

When analyzing the proposed relocation of the shipping lanes in the late 90s, the Navy took a position that such relocation would actually increase air pollution due to the longer route to the ports of Los Angeles and Long Beach. In response, CARB created a Technical Working Group (TWG) comprised of representatives from EPA, CARB, the Navy, the shipping industry, the Los Angeles and Long Beach Ports, and the City of Los Angeles. The Final Report<sup>1</sup> from this TWG concluded that a speed reduction

<sup>1</sup>[http://www.arb.ca.gov/eos/projects/M13/M13\\_final\\_report-nov2000.pdf](http://www.arb.ca.gov/eos/projects/M13/M13_final_report-nov2000.pdf)

alternative in the current location consistently produces significant emission reductions (3.9-10.7 tons per day). Scenario #1 reduced speeds to 15 knots out to 20 nautical miles (NM) from the Port's Precautionary Zone (an area approximately 5 miles from the breakwater) in the current location and has been implemented by the shipping industry as a voluntary measure<sup>2</sup>. Scenario #2 is a 12 knot speed limit in the current location out to the south coast over water boundary<sup>3</sup>. Scenario #3 is a 15 knot speed limit to the same location. Relocating the shipping lane within the Sea Range would actually increase NOx by 1.3 tons per day from the 2003 inventory, resulting in a net increase of 5.2<sup>4</sup> tons per day from #1 which is the status quo. This increase results from the additional distance involved in the relocated channel. For purposes of the report it was assumed that ships would not increase their speeds through the range to make up this distance. Any speed increase would also increase the ships' emissions, making the NOx level even higher than shown in table VI-6, below.

It should be noted that the Executive Summary of the ARB report noted that:

The impact of moving the shipping lane further offshore on the onshore flux of NOx emissions is more sensitive to meteorological conditions. On some days there is an emission reduction benefit and on other days there is a disbenefit, depending on the specific weather and wind conditions.

Citing this conclusion, some may challenge an overall conclusion that the relocated ship channel creates an adverse impact. There were six days studied in a tracer analysis. Four of those six days showed the relocated channel having lower emissions than the current channel. These four days represent only 18% of the meteorological conditions found in an average South Coast year. The other two study days represent South Coast conditions 29.3% of the year. Both these days showed an emissions increase for the relocated ship channel.

Consider one of the study days -- September 5 1997. On this day the tracer study indicated the relocated ship channel would increase NOx to South Coast by 13.2 tons per day. September 5 1997 was typical of 81 days, (22.2 percent of the year) for south coast. At the other extreme, on August 4, 1997, the relocated ship channel reduced NOx by 16 tons per day. That day, however, only represented 16 days (7.1 percent of the year) for South Coast. To accommodate this variation, ARB created a weighted average in the study to derive the figures cited in Table VI-6.

**Table VI-6**  
**Emission Reduction Estimates in 1997 SIP Currency and Current Inventory**

Control Strategy	Control Factor	Projected 2010 Baseline Inventory Tons per Day NOx		Projected 2010 Estimated Reductions, Tons per Day NOx	
		1997 SIP	Current Inventory	1997 SIP	Current Inventory
Speed control scenario #1	-0.15	18.7	26.2	-2.8	-3.9
Speed control scenario #2	-0.41	18.7	26.2	-7.7	-10.7
Speed control scenario #3	-0.27	18.7	26.2	-5.0	-7.0
Proposed shipping lane	+0.03	34.7	44.7	+1.0	+1.3

<sup>2</sup> <http://www.pollutiononline.com/content/news/article.asp?DocID=%7B8DE62B76-D991-4BF2-8315-F06C3BAC5B96%7D&Bucket=Supplier+News&VNETCOOKIE=NO>

<sup>3</sup> The over water boundary of the South Coast Air Basin (SCAB) is delineated by straight line extensions perpendicular to the coast of the overland SCAB boundaries (the Ventura-Los Angeles County line to the north and the San Diego-Orange County line to the south) out to the point where the straight line extensions intersect with the California Coastal water boundary -- approximately 100 miles offshore in the SCAB.

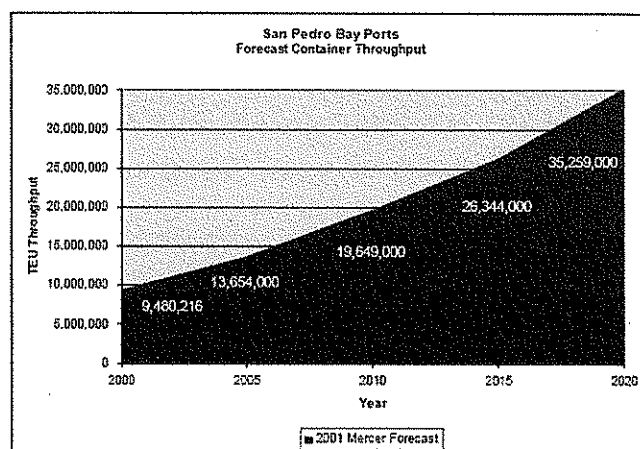
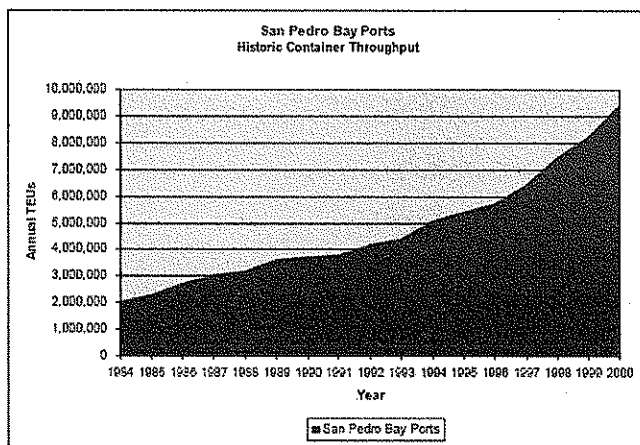
<sup>4</sup> The 5.2 ton figure represents the savings from scenario #1 added to the increases from the proposed shipping channel.

The Navy's position in the CARB Working Group was that vessel speed reduction was a superior alternative for consideration. Confirming this, the executive summary stated:

Reducing the speed at which ships travel reduces the flux of NOx emissions that reach onshore. The magnitude of the reductions is dependent upon the degree of speed reduction and the distance traveled at the reduced speed with the reductions proportional to the distance traveled and the reduced speed.

This was a consistent result across all six of the days. Hence, the conclusion of the report was on balance a speed reduction alternative produces consistent, beneficial results as shown in Table VI-6. There is no day like September 5, 1997 for the speed reduction alternative where a relocated ship channel increased NOx pollution by 13.2 tons in South Coast.

The Ports of Los Angeles and Long Beach continue to see a trend of increased shipping activity, the obvious result of a combination of economic growth in the Pacific Basin and the limited container port options along the west coast of the United States. As shown below<sup>5</sup>, container throughput at west coast ports will almost double in the next ten years. This means that all the potential impacts to air quality along the South Coast and activity within the Sea Range will also be magnified.



## DISCUSSION:

After several years of quiet, California is again considering options to reduce NOx emissions from the current Santa Barbara commercial shipping channel through two separate venues. First, CARB adopted 13 CCR 2299.1 (2007), requiring the use of low-sulfur fuels within 24 NM of the mainland of California for auxiliary diesel engines and diesel-electric engines operated on ocean-going vessels as a condition of California port entry. On February 27, 2008, the 9<sup>th</sup> Circuit, on appeal, held that Section 209(e)(2) of the Clean Air Act preempts CARB from imposing "emissions standards" on these engines without seeking prior EPA authorization. CARB is exploring three follow-on options including appellate relief, applying for an EPA waiver, and changing the regulation to be a fuel specification vice emission standard.

Simultaneously, CARB is proposing a similar rule for main engines.

A new area where the ship channel/emissions issue is gathering attention is a CARB regulatory proposal,

<sup>5</sup> Port of Los Angeles Port-wide Transportation Master Plan <http://www.metrotrans.org/nuf/documents/lai.pdf>

to be considered in 2008, creating a mandatory speed reduction regulation in the current Santa Barbara Channel beyond the existing voluntary measure (15 knots out to 20 NM). CARB is considering controlling speed limits of ships while they are within the current shipping routes as a condition of entry to the Ports of Los Angeles/Long Beach. Coupled with the more expensive fuel requirements<sup>6</sup>, we are concerned that this could influence commercial shipping to traverse the Sea Range instead of the Santa Barbara Channel. Under present definitions, traversing the Sea Range would avoid most of the new fuel requirements as well as most of the area covered by the proposed speed reduction regulation. Again, aside from the significant impacts to the military mission this would serve to increase air pollution in SOCAL.

The final way ship traffic speed in the Santa Barbara Channel creates potential encroachment concerns for the Sea Range is the increasing concern for marine mammal safety. Specifically, three blue whale strikes last fall in the Santa Barbara Channel have been attributed to ship strikes due to the heavy use of the ship channel by commercial shipping. Members of the Channel Islands National Marine Sanctuary Advisory Committee have already advocated reducing speeds in the channel; and, some have advocated moving shipping out of the channel. In light of these ship strikes, the Center for Biological Diversity (CBD) filed a petition under the Endangered Species Act<sup>7</sup> to set a 10 knot speed limit for commercial vessels through Santa Barbara, Ventura and portions of Los Angeles counties.

If all of the precautionary measures mentioned above (the existing voluntary speed reduction, CARB measures, and the CBD petition) became reality, the commercial ship transit from Point Conception to the Ports of Los Angeles/Long Beach would be subject to a 10 knot speed limit for 117 NM. These factors would increase transit times and make traversing the Sea Range, which lies outside the requested speed limit zone, a quicker alternative (see following discussion). The increased traffic could result in a substantial encroachment to military operations.

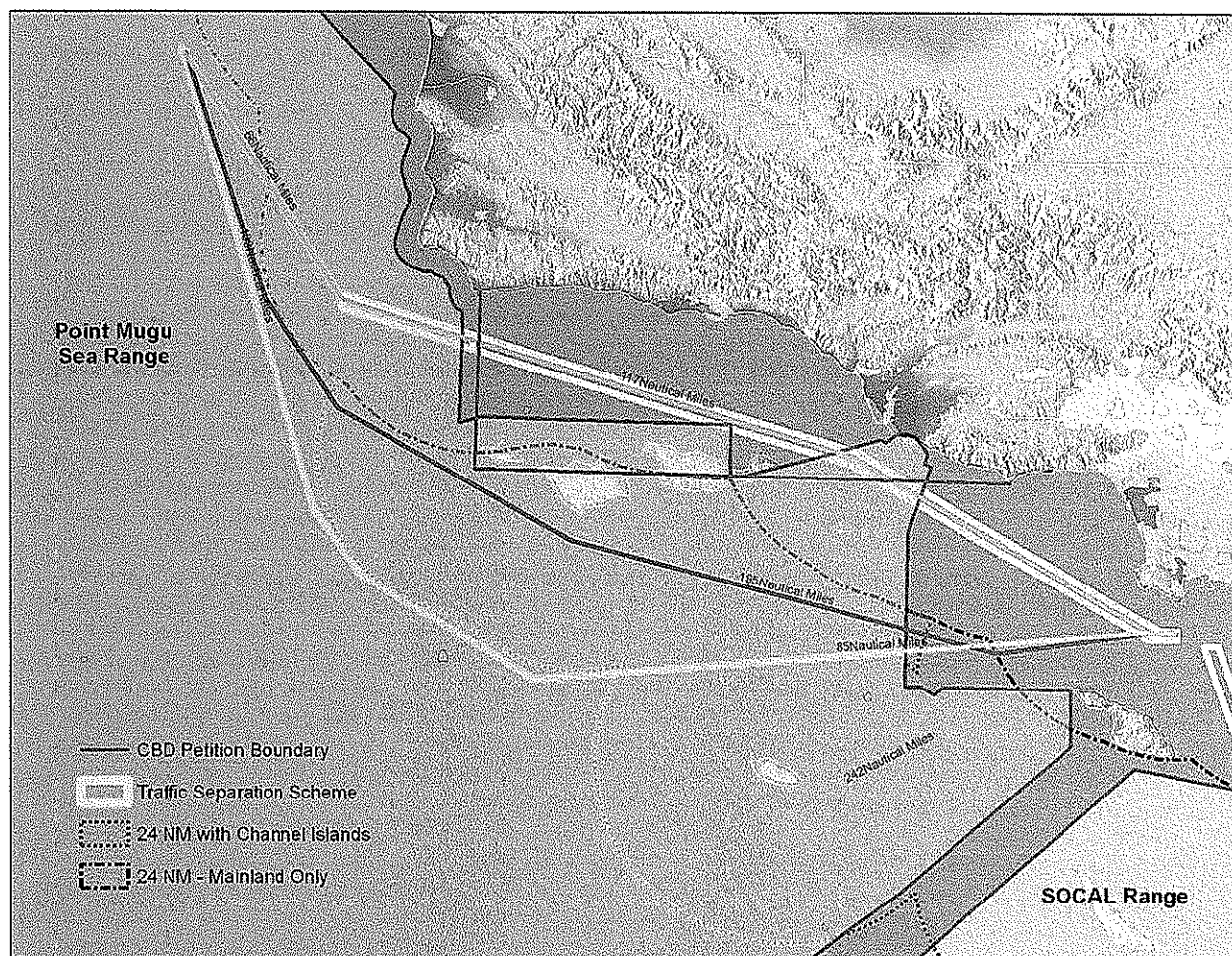
At least one shipping company has already recognized that it may be cheaper to avoid the Santa Barbara Channel, which lies entirely within the scope of the CARB regulation and sought Navy consideration of a route through the Sea Range even though the new route adds extra length (42 NM additional) to the traverse. Subsequent to this, the shipping industry's trade organization approached the Navy with a similar question but this time based on the marine mammal issue.

The overall situation is shown on a map on the next page.

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<sup>6</sup> CARB staff has estimated that the main engine regulation currently being discussed would increase fuel costs by \$49K per vessel transit due to the substantially higher costs of low-sulfur fuel vice bunker fuel.

<sup>7</sup> <http://www.biologicaldiversity.org/swcbd/SPECIES/bluewhale/Blue-Whale-ship-strike-petition-09-2007.pdf>



The black line is the 24 NM boundary from the mainland. The red line would be 24 NM from the coast and islands. We analyzed the following three options of the shipping companies:

- **Green Route:** The green line is the current ship route between the South Central California Coast and the Ports of Los Angeles/Long Beach. This route is mostly within the 24 NM zone and is 183 NM in length. It takes 9.15 hours at a current speed of 20 knots and would take 13.05 hours with a reduced speed of 10 knots. With a speed reduction in place it has the least impact to air quality and would substantially reduce current NOx impacts from commercial shipping..
- **Red Route:** The red route is 195 NM, adds 12NM of distance and stays outside 24 NM from the mainland as long as possible. It takes 9.75 hours to transit the red route at 20 knots. The red route is the approximate route which was used by CARB in assessing the air quality impacts of a relocated channel discussed earlier. Since the time of the CARB report, however, the Channel Islands National Marine Sanctuary has been expanded putting this route in close proximity to these protected waters and the islands comprising the marine sanctuary. With the growing concerns about the negative impacts of commercial shipping on marine life, this route seems an unlikely alternative. Further, the open ocean location could increase the navigational hazards while approaching and passing within close proximity to these sensitive islands.
- **Orange Route:** The orange line would be a route minimizing the time spent in the zone requiring compliance with the diesel aux engine rule, the potential 2008 CARB speed reduction rule, and

potential limitations on speed for marine mammal safety<sup>8</sup> at a greater distance from the Channel Islands. The orange route is 215 NM in length, 42 NM longer than the current green route. It takes 10.75 hours to transit at a speed of 20 knots. Given the greater distances this route would likely generate increased NOx emissions for the south coast. .

Based on the information available on the ship channel issue, such as the additional costs of staying in the Santa Barbara Channel, increased fuel costs, and delays due to speed limitations, the clear and rational conclusion for shipping companies is to choose a new course through the Sea Range for arrivals/departures to the Ports of LA/Long Beach.

In light of this analysis, the Navy has asked CARB to consider the adverse impacts (a NOx increase of at least 5 tons per day<sup>9</sup>) that the extra distance and potentially higher ship speeds could have on SOCAL air quality<sup>10</sup>.

In 2004 Governor Schwarzenegger signed the California Ocean Protection Act creating the California Ocean Protection Council<sup>11</sup> (COPC.) The COPC's charter is to provide broad policy for California ocean and coastal resource management.<sup>12</sup> It is chaired by the Secretary of Resources and also includes, as members, the Lieutenant Governor in his capacity as Chairman of the State Lands Commission, the

<sup>8</sup> Of course, there are marine mammals throughout the Southern California waters, not just in the route between the Channel Islands and the mainland.

<sup>9</sup> Since the CARB report, the voluntary speed reduction measure has been implemented changing the baseline. Furthermore, if shipping companies move the route to avoid further regulation in the Santa Barbara Channel they could increase speeds through the Sea Range to make up lost time. The 5 ton per day increase did not assume any speed increases.

<sup>10</sup> In a 7 June 2007 letter on the California SIP Navy Region Southwest wrote:

However, we have a specific concern with the proposals for increased regulation of the shipping industry that center on plans for additional regulation of ships within 24 nautical miles of the California coastline. At least one shipping company has approached the Navy to seek approval to minimize its travel in California coastal waters by leaving the established shipping lanes and traversing our training ranges in order to evade a substantial portion of ARB's regulation. We strongly oppose any such movement. Aside from an almost total disruption of our ability to train and conduct research, development, test and evaluation, the extra distance involved and the higher speeds that will be maintained will lead to greater emissions in the South Coast. I call your attention to ARB's "Air Quality Impacts from NOx Emissions of Two Marine Vessel Control Strategies in the South Coast Air Basin Final Report" (September 2000) which after much modeling and review documented the increase in pollution. We believe the 2007 SIP must be revised to incorporate measures that will ensure that the shipping industry does not abandon the current shipping lanes.

<sup>11</sup> <http://www.resources.ca.gov/copc/>

<sup>12</sup> **35515.** The Legislature finds and declares that the purpose of this division is to integrate and coordinate the state's laws and institutions responsible for protecting and conserving ocean resources, including coastal waters and ocean ecosystems, to accomplish all of the following objectives:

- (a) Provide a set of guiding principles for all state agencies to follow, consistent with existing law, in protecting the state's coastal and ocean resources.
- (b) Encourage cooperative management with federal agencies, to protect and conserve representative coastal and ocean habitats and the ecological processes that support those habitats.
- (c) Improve coordination and management of state efforts to protect and conserve the ocean by establishing a cabinet level oversight body responsible for identifying more efficient methods of protecting the ocean at less cost to taxpayers.
- (d) Use California's private and charitable resources more effectively in developing ocean protection and conservation strategies.
- (e) Provide for public access to the ocean and ocean resources, including to marine protected areas, for recreational use, and aesthetic, educational, and scientific purposes, consistent with the sustainable long-term conservation of those resources.

Cal/EPA Secretary, two public members including the former mayor of San Diego and the Director of the Port of Los Angeles, and two members of the legislature.

The COPC created the California Ocean Action Plan in 2004. This plan includes the following basic objective<sup>13</sup>:

*Coordinate California ocean and coastal management activities that impact military facilities/operations with the Department of Defense, as well as requesting the Department of Defense to coordinate their activities and operational needs with the State of California to the extent possible without compromising national security objectives.*

Given its statutory charter to coordinate with federal agencies, as well as the Ocean Protection Plan's recognition of the need to protect military facilities/operations; this would be an appropriate level/venue at the appropriate time for the overall discussion of policy which touches on air quality, natural resources, and goods movement. Again, at the appropriate time, this coordination will help ensure that actions by one state agency do not create unintended impacts on coastal resources, e.g. air quality and marine resources, by forcing commercial shipping to increase their ship speed to make up time on longer transits – all of which encroach on the Sea Range.

### **RECOMMENDATION:**

1. Formally request that CARB consider and respond to the comments<sup>14</sup> already made on the adverse impacts (a NOx increase of at least 5 tons per day<sup>15</sup>) that the extra distance and potentially higher ship speeds could have on SOCAL air quality and impacts to the military mission. Work with CARB to consider this issue in upcoming regulatory development relating to fuel standards and vessel speed reduction in California coastal waters.
2. At the appropriate time, ask that the California Ocean Protection Council convene a stakeholder group to consider options to commercial shipping in the Santa Barbara Channel that would improve air quality, protect marine mammal resources and fully protect the Sea Range.

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<sup>13</sup> Executive Summary, page vi, September 2004

<sup>14</sup> See letter referenced in footnote 10.

<sup>15</sup> Since the CARB report, the voluntary speed reduction measure has been implemented changing the baseline. Furthermore, if shipping companies move the route to avoid further regulation in the Santa Barbara Channel they could increase speeds through the Sea Range to make up lost time. The 5 ton per day increase did not assume any speed increases.